Claims

1. A filter element for filtering fluids with at least one filter unit (12, 14, 16) which is arranged concentrically around its longitudinal axis (10), and which is supported in the direction of the respective throughflow with the fluid stream on at least one support element (24, 26, 30), at least some of the support elements (24, 26) being provided at least on their side facing the filter unit (12, 14, 16) with channels (28) for fluid guidance (22), the channels (28) extending with their longitudinal ribs (50) which border them in spiral tracks along the support element (24, 26), and the respective channel (28) with its two free ends emerging on the opposing ends of the respective support element (24, 26), characterized in that the channels (28) extend continuously without repeated deflections of the fluid stream along the respective support element and that the channels (28) only partially encompass the respective support element (24, 28) with the formation of a twisting guide for the fluid flow.

2. The filter element as claimed in claim 1, wherein the respective support element (24, 26, 30) is formed from a support tube and wherein the respective channels (28) are bordered laterally by the projecting longitudinal ribs (50) of the support tube.

3. The filter element as claimed in claim 2, wherein the channels (28) are located both on the inner and outer peripheral side on the support tube (24, 26).

4. The filter element as claimed in one of claims 1 to 3, wherein the longitudinal ribs (50) are seated as crosspieces on the support tube (24, 26) or wherein the longitudinal ribs (50) which are located directly adjacent connected in pairs to one another on the outer peripheral side form a support surface (68) and on the inner peripheral side form the base (70) of the groove of the individual channels (28).

5. The filter element as claimed in one of claims 1 to 4, wherein there are a total of three support elements (24, 26, 30) and three filter units (12, 14, 16) which are arranged in an alternating sequence concentrically around the longitudinal axis (10) of the filter element.

6. The filter element as claimed in claim 5, wherein the innermost support element (30) has a support tube with passages as the channel guide for the fluid flow.

7. The filter element as claimed in claim 5 or 6, wherein the fluid stream may flow through the innermost and the outermost filter unit (16, 12) from the outside to the inside in the direction to the clean side (32) of the filter element and wherein flow is incident on the filter unit (14) which lies in between from the two sides to the inside and outside.

8. The filter element as claimed in one of claims 1 to 7, wherein the respective filter unit (12, 14, 16) is formed from a cylindrical filter mat and wherein all filter mats have essentially the same linear dimensions in the axial direction to the longitudinal axis (10).

9. The filter element as claimed in one of claims 1 to 8, wherein the support elements (24, 26, 30) and the filter units (12, 14, 16) are arranged concentrically to the longitudinal axis of the filter element.

10. The filter element as claimed in one of claims 1 to 9, wherein at least 20 channels (28) which are located on one of the support elements (24, 26, 30) form a common fluid guide and wherein the respective channel (28) has a tilt of the twisting guide between 10° to 30°, preferably 15°, relative to the axis which is parallel to the longitudinal axis of the filter element.